

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 205/GT/2013

**Coram: Shri Gireesh B. Pradhan, Chairperson
Shri M.Deena Dayalan, Member
Shri A.K.Singhal, Member**

Date of Hearing: 22.5.2014

Date of Order: 10.7.2014

In the matter of

Petition for determination of tariff of Rihand Super Thermal Power Station Stage-III (1000 MW) for the period from anticipated date of commercial operation of Unit-I to 31.3.2014.

And

In the matter of

Grant of provisional tariff in respect of Rihand Super Thermal Power Station, Stage-III (1000 MW) from the anticipated date of commercial operation of Unit-I & II to 31.3.2014

And

In the matter of

NTPC Ltd, New Delhi

...Petitioner

Vs

1. Uttar Pradesh Power Corporation Ltd, Lucknow
2. Jaipur Vidyut Vitran Nigam Ltd., Jaipur
3. Ajmer Vidyut Vitran Nigam Ltd., Jaipur
4. Jodhpur Vidyut Vitran Nigam Ltd., Jaipur
5. North Delhi Power Ltd., Delhi
6. BSES Rajdhani Power Ltd., New Delhi
7. BSES Yamuna Power Ltd., Delhi
8. Haryana Power Purchase Centre, Haryana
9. Punjab State Power Corporation Ltd, Patiala
10. Himachal Pradesh State Electricity Board Ltd, Shimla
11. Power Development Department, Government of J& K, Jammu
12. Electricity Department, Union Territory of Chandigarh, Chandigarh
13. Uttarakhand Power Corporation Ltd, Dehradun

...Respondents

Parties present:

Shri Ajay Dua, NTPC

Shri A. S. Pandey, NTPC

Shri Shankar Saran, NTPC

Shri Neeraj Kumar, NTPC
Shri R. B. Sharma, Advocate, BRPL
Shri Padamjit Singh, PSPCL

ORDER

The petitioner, NTPC Ltd filed this petition on 17.7.2012 for approval of tariff of Rihand Super Thermal Power Station, Stage-III (2 x 500 MW) ("the generating station") for the period from the anticipated date of commercial operation of Unit-I to 31.3.2014, in accordance with the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (hereinafter referred to as "the 2009 Tariff Regulations").

2. While so, the petitioner by letter dated 19.11.2012 submitted that Unit-I of the generating station has been declared under commercial operation with effect from 19.11.2012 and prayed for grant of provisional tariff in order to bill the respondents for the power supplied from the generating station, subject to adjustment after determination of final tariff by the Commission. The Commission by its order dated 24.12.2012 granted provisional tariff from the date of commercial operation of Unit-I of the generating station i.e. from 19.11.2012 till 31.3.2014 in exercise of the power under Clause (4) of Regulation 5 of the 2009 Tariff Regulations. The provisional annual fixed charges allowed for Unit-I of the generating station for the period 2012-13 (19.11.2012 to 31.3.2013) and from 1.4.2013 to 30.6.2013, based on the capital cost of ₹253107.00 lakh as on 19.11.2012 and the projected additional capital expenditure of ₹20254.00 lakh by the said order dated 24.12.2012 is as under:

<i>(₹ in lakh)</i>	
Annual Fixed Charges for 2012-13 for Unit-I (23.7.2012 to 31.3.2013)	Annual Fixed Charges for 2013-14 for Unit-1 (1.4.2013 to 30.6.2013)
60638.47	62311.92

3. By the said order, the petitioner was also directed to revise the figures in the petition taking into consideration the date of commercial operation of Unit-II of the generating station, in terms of the provisions of the 2009 Tariff Regulations.

4. Thereafter, the petitioner by affidavit dated 8.3.2013 revised its claim based on the audited capital cost as on actual COD of Unit-I (19.11.2012) and also revised the projected additional capital expenditure from the date of COD of Unit-I (19.11.2012) to 31.3.2014. Subsequently, the petitioner vide letter dated 24.3.2014 has informed that Unit-II of the generating station has been declared under commercial operation on 27.3.2014 and prayed for the grant of provisional tariff in order to bill the respondents for the power supplied from the generating station, subject to adjustment after determination of final tariff.

5. The petitioner, in compliance with the directions of the Commission, has filed additional submissions in the matter and has served copies on the respondents. The respondents, UPPCL, PSPCL, BRPL and TPDDL have filed replies to the petition and the petitioner has filed rejoinder to the said replies.

6. The petition was heard on 22.5.2014 and the petitioner prayed for determination of tariff of the generating station from the COD of the respective units till 31.3.2014. Taking into consideration the submissions of the parties, the Commission reserved its orders in the petition, with a direction to the petitioner to revise certain tariff filing forms and submit additional information, with copies to the respondents. The petitioner has not yet submitted the information as sought for by the Commission. Since Unit-II of the generating station has achieved commercial operation and the petitioner is required to bill for the energy supplied, we have decided to grant provisional tariff for Unit-I (19.11.2012) to 26.3.2014 and for Unit-II (generating station) from 27.3.2014 to 31.3.2014 based on the documents available on record, subject to adjustment after determination of final tariff. We proceed accordingly.

Time and Cost overrun

7. The time period for completion of different units of a green field project with unit size of 500 MW, as specified under the 2009 Tariff Regulations is 42 months for the first unit and thereafter, at an interval of six months for subsequent units. As stated, the investment approval of the project was accorded by the Board of the petitioner company at its meeting held on 24.1.2009. The petitioner vide affidavit dated 10.1.2014 has

submitted that the investment approval envisaged the scheduled date of commercial operation of Unit-I within the time period of 41 months from the Main Plant award and a further 6 months period for commercial operation of Unit-II of the generating station, subject to environment clearance by the Ministry of Environment & Forests, Govt. of India and the Central Water Commission. The scheduled and actual dates of commercial operation of Unit-I and Unit-II are as under:

Scheduled COD as per Investment Approval	Actual COD	Time overrun
27.6.2012 (Unit-I)	19.11.2012	4 months 22 days
27.12.2012 (Unit-II)	27.3.2014	15 months

8. The petitioner has submitted that the delay in the completion of the project is beyond its control and has furnished the following reasons for time overrun:

- (i) Severe shortage of supply of the aggregate and virtually stoppage of all Civil works at Rihand for around 10 months;
- (ii) Geological surprises in the form of high water table which increased the execution time of underground work as the same required de-watering before start of Civil work;
- (iii) Ash disposal system was redesigned that *inter alia* included the re-routing of pipeline from Ash Slurry pump to existing ash dykes of Rihand-I & II;
- (iv) Power evacuation problem due to the non-availability of 765/400 kV Rihand-Vindhyachal line upto Vindhyachal pooling sub-station by Power Grid.

9. The reasons for time overrun furnished by the petitioner require detailed examination and determination. We are of the view that the question of delay in the commissioning of the project and its impact on time and cost overrun, including IDC, will be looked into in detail at the time of determination of final tariff.

Capital Cost

10. The investment approval of the project was accorded by the board of the petitioner company on 24.1.2009 at an estimated project cost of ₹67368.97 million including IDC and FC of ₹7741.62 million and WCM of ₹1161.93 million at a price level of 4th quarter of 2008. The petitioner has furnished the audited

capital cost as on COD of Unit-I of the generating station (19.11.2012) and the projected additional capital expenditure from COD of Unit-I to 31.3.2014. However, in case of Unit-II, the petitioner has furnished the un-audited capital cost (on cash basis) as on COD of Unit-II (27.3.2014) as follows:

<i>(₹in lakh)</i>	
Capital Expenditure as on COD of Unit-I (19.11.2012) including IDC, FC etc.	Capital expenditure as on COD of Unit-II (cash basis) including IDC, FC, FERV etc
188618	469092

11. It is observed that the actual capital expenditure as on COD of the units is lower than the approved cost despite time overrun in the commissioning of both units of the generating station. Keeping in view the fact that there is time and cost overrun and that the capital cost submitted by the petitioner as on COD of Unit-II is unaudited, we consider it prudent to allow provisional tariff based on 85% of capital cost (actual) as on COD of Unit-I and Unit-II, subject to adjustment at the stage of determination of final tariff. Accordingly, capital cost considered for the purpose of provisional tariff from the COD of Unit-I & II till 31.3.2014 is as under:

<i>(₹in lakh)</i>			
	2012-13	2013-14	
	19.11.2012 to 31.3.2013	1.4.2013 to 26.3.2014	27.3.2014 to 31.3.2014
Capital cost	160325	160325	398728

Projected Additional Capital Expenditure

12. The projected additional capital expenditure claimed from the actual COD of Unit-I (19.11.2012) to 31.3.2013 and for 2013-14 is as under:

<i>(₹in lakh)</i>		
2012-13 (19.11.2012 to 31.3.2013)	2013-14 (1.4.2013 to 30.6.2013)	2013-14 (1.7.2013 to 31.3.2014)
41497	0.00	22066

13. As stated, the capital cost as on COD of Unit-II as furnished by the petitioner is ₹469092 lakh. Since the actual COD has taken place on 27.3.2014, the projected additional capital expenditure earlier claimed for the period from the COD of Unit-I (19.11.2012) to 31.3.2013 and from the anticipated COD of Unit-II

(1.7.2013) to 31.3.2014 have been substantially capitalized as on COD of Unit-II. Any capitalization of expenditure between 27.3.2014 to 31.3.2014 will be considered at the time of determination of final tariff.

14. The petitioner in the revised Form-9 filed vide affidavit dated 8.3.2013 has not claimed actual/projected capital expenditure on this scheme during the tariff period 2009-14. Now the petitioner has claimed capitalization of the expenditure of ₹14.60 crore towards implementation of the scheme for supply of power within 5 kms radius of the generating station. The petitioner has submitted that the scheme is likely to be completed during 2013-14. The petitioner has submitted that even though Ministry of Power (MOP), GOI vide notification dated 25.3.2013 has withdrawn the scheme, eight generating stations including the one related to Rihnad STPS has been exempted by MOP vide notification dated 5.3.2014. Accordingly, work is to be completed by this project. Considering the fact that the 2009 Tariff Regulations provides for additional capitalization of the expenditure towards 5 kms scheme and considerable work has been done in this project, we are of the view that the additional capital expenditure will be admissible to the petitioner. We however direct that the expenditure on this scheme will be considered at the time of final determination of tariff by which time the actual cost of the scheme will be available.

15. Return on Equity, interest rates on loan and working capital as claimed by the petitioner have been considered as per the provisions of the 2009 Tariff Regulations.

16. The petitioner has claimed the following O&M expense norms for 500 MW units for coal based generating stations:

	<i>(₹ in lakh per MW)</i>	
	2012-13 (19.11.2012 to 31.3.2013)	2013-14
O&M expense norms for 500 MW units	15.36	16.24

17. The O&M expenses allowed for provisional tariff are as under:

(₹ in lakh)

	2012-13	2013-14	
	(19.11.2012 to 31.3.2013)	(1.4.2013 to 26.3.2014)	(27.3.2014 to 31.3.2014)
	Unit-I		Unit-I & II
O&M (annualised)	7680.00	8120.00	16240.00

Water Charges

18. The petitioner has also claimed additional water charges due to increase in the water charges by the State Government and has submitted that the increase is substantially high as compared to escalation of 5.72% provided under the 2009 Tariff Regulations. The petitioner has proposed to claim the same separately and directly from the beneficiaries. Since Petition No.121/MP/2011 for recovery of additional cost incurred due to abnormal increase in water charges in NTPC stations is being heard by the Commission, the decision taken in the said petition would be applicable to the present petition. Hence, the same has not been considered in this order.

Operational Norms

19. The following norms of operation for unit size of 500 MW has been considered by the petitioner for the purpose of tariff:

Target Availability	85%
Heat Rate (kcal/kWh)	2423.94
Auxiliary Power Consumption (with induced draft cooling)	6.5%
Specific Oil Consumption (ml/kWh)	1.0

20. The operational norms considered by the petitioner such as Target Availability of 85%, Auxiliary Power Consumption of 6.5% for Turbine driven BFP and induced draft cooling system and Specific Oil Consumption of 1.0 ml/kWh are in accordance with the norms specified under the 2009 Tariff Regulations. The petitioner has indicated the Guaranteed Turbine Cycle Heat Rate of 1932 kcal/kWh and Guaranteed Boiler efficiency of 84.05%. Based on the above parameters and after considering the margin of 6.5%, the Gross Station Heat Rate works out to 2448.04 kcal/kWh ($1932/0.8405 \times 1.065$). The Ceiling Design Heat Rate for the unit having turbine driven BFP and with super heat temperature/reheat temperature of 537/565

degree Celsius, using sub-bituminous Indian coal is 2276 kcal/kWh as per the 2009 Tariff Regulations. Based on the Ceiling Design Heat Rate of 2276 kcal/kWh and after considering the margin of 6.5%, the Gross Station Heat Rate works out to 2423.94 kcal/kWh (1.065 x ceiling design heat rate =1.065 x 2276). Hence the Gross Station Heat Rate of 2423.94 kcal/kWh considered by the petitioner is in order and has been allowed.

Expenses on Secondary Fuel Oil Consumption

21. The petitioner vide affidavit dated 8.3.2013 has claimed Secondary fuel oil cost based on the actual COD of Unit-I (19.11.2012) as under:

	<i>(₹ in lakh)</i>		
	2012-13 (19.11.2012 to 31.3.2013)	2013-14 1.4.2013 to 30.6.2013)	2013-14 (1.7.2013 to 31.3.2014)
Expenses on secondary oil (annualised)	2270.99	2270.99	4541.99

22. The petitioner has furnished the Price & GCV of Secondary fuel oil for the month of September, 2012 instead of the preceding three months prior to the COD of Unit-I in Form-15. Based on the Price & GCV of Secondary fuel oil for the month of September, 2012, the expenses on Secondary fuel oil consumption for the period from 19.11.2012 to 26.3.2014 for the purpose of provisional tariff is worked out as under:

	<i>(₹ In lakh)</i>	
	2012-13 (19.11.2012 to 31.3.2013)	2013-14 1.4.2013 to 26.3.2014)
Expenses secondary oil (annualised)	2271.00	2271.00

23. The petitioner in its affidavit dated 12.5.2014 has not furnished the GCV & Price of Secondary fuel oil for the preceding three months from COD of Unit-II i.e 27.3.2014. In the absence of this, the cost of secondary fuel oil for the month of September, 2012 i.e. preceding month of the COD of Unit-I has been considered for working out the expenses on Secondary fuel oil for Unit-II also. Accordingly, the following expenses on Secondary fuel oil consumption have been allowed from COD of Unit-II (27.3.2014) to 31.3.2014:

(₹ in lakh)

	2013-14 (27.3.2014 to 31.3.2014)
Expenses on secondary oil (annualised)	4541.99

24. However, the expenses on secondary fuel oil considered as above, is subject to revision based on the Price & GCV of secondary fuel oil for the preceding three months from COD of Unit-II (27.3.2014) at the time of determination of final tariff.

Fuel Component and Energy charges in Working Capital

25. The petitioner vide its affidavit dated 8.3.2013 has claimed the following cost of Coal and Energy Charges in Working Capital based on the weighted average GCV and price for the preceding three months to the COD of Unit-I (August, 2012, September, 2012 and October, 2012 and the cost of Secondary fuel for the preceding month of September, 2012 of the COD of Unit-I (19.11.2012) as under:

(₹ in lakh)

	2012-13 (19.11.2012 to 31.3.2013)	2013-14 1.4.2013 to 30.6.2013)	2013-14 (1.7.2013 to 31.3.2014)
Cost of coal for 1½ months	5322.00	5322.00	10645.00
Cost of secondary fuel oil for two months	378.50	378.50	757.00
Energy Charges for 2 months (primary fuel coal)	7096.00	7096.00	14192.00

26. The petitioner vide its affidavit dated 12.5.2014 has revised the amount charged by the Coal company for the months of August, 2012, September, 2012 and October, 2012 (Form-15) prior to the COD of Unit-I (19.11.2012). The revised amounts for coal charged by the coal company has not been considered for the purpose of provisional tariff and the same will be considered at the time of determination of final tariff after prudence check.

27. The fuel components and energy charges as worked out below have been considered for the purpose of provisional tariff for the period from 19.11.2012 to 26.3.2014.

	(₹ in lakh) 2012-13 (19.11.2012 to 26.3.2014)
Cost of coal for 1½ months	5322.29
Cost of secondary fuel oil for two months	378.50
Energy Charges for 2 months (primary fuel coal)	7096.39

28. The COD of Unit-II is 27.3.2014. The petitioner vide affidavit dated 12.5.2014 has furnished the details of GCV & Price of coal for the preceding three months i.e. December, 2013, January, 2014 and February, 2014 but has not furnished the Price & GCV of secondary fuel oil for December, 2013, January, 2014 and February, 2014. In view of this, the fuel component and energy charges in working capital for Unit-I and for Unit-I & Unit-II (generating station) have been worked out based on the price & GCV of coal for the preceding three months (December, 2013, January, 2014 and February, 2014) of the COD of Unit-II. Also, in the absence of secondary fuel oil for preceding three months, the cost of secondary fuel oil as considered for Unit-I has been considered for the generating station. Accordingly, the following fuel component and Energy charges have been considered for the purpose of provisional tariff.

	(₹ in lakh) 2013-14 (27.3.2014 to 31.3.2014)
Cost of coal for 1½ months	11739.16
Cost of secondary fuel oil for two months	757.00
Energy Charges for 2 months (primary fuel coal)	15652.22

29. The annual fixed charges on provisional basis approved for the period from COD of Units-I & II till 31.3.2014 is as under:

	(₹ in lakh)		
	2012-13	2013-14	
		Unit-I	Unit-I & II
	(19.11.2012 to 31.3.2013)	(1.4.2013 to 26.3.2014)	(27.3.2014 to 31.3.2014)
Return on Equity	8407.92	8407.92	20910.49
Interest on Loan	9269.10	8508.25	21401.86
Depreciation	8593.42	8593.42	21371.82
Interest on Working Capital	2953.92	2963.75	6422.44
O&M Expenses	7680.00	8120.00	16240.00
Cost of secondary fuel oil	2271.00	2271.00	4541.99
Total	39175.36	38864.34	90888.60

30. The provisional annual fixed charges determined on annualized basis are applicable on *pro rata* to the number of days of operation of the said units of the generating station.

31. The petitioner shall submit the additional information as sought for vide ROP dated 22.5.2014 on affidavit, on or before 11.8.2014, with copy to the respondents. No extension of time shall be granted for any reason whatsoever. The additional information received after the due date shall not be considered.

32. The provisional annual fixed charges allowed above is subject to adjustment as per proviso to Clause (3) of Regulation 5 of the 2009 Tariff Regulations.

Sd/-
[A.K.Singhal]
Member

Sd/-
[M.Deena Dayalan]
Member

Sd/-
[Gireesh B. Pradhan]
Chairperson